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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 08/892,403 | 07/15/97 | MURPHY | B 17634-000510 |

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EXAMINER

BRUMBACK, B

ART UNIT

PAPER NUMBER

1643

DATE MAILED: 05/08/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

| | | |
|------------------------------|--------------------------------------|--------------------------------------|
| Office Action Summary | Application No. 08/892,403 | Applicant(s) Murphy et al. |
| | Examiner Brenda Brumback | Group Art Unit 1643 |

Responsive to communication(s) filed on Feb 17, 1998

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-62 is/are pending in the application.

Of the above, claim(s) 11-46, 51-60, and 62 is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-10, 47-50, and 61 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 9

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. The examiner acknowledges applicant's election of Group I, claims 1-10, 47-50, and 61 in the response filed 02/17/98. Because applicant did not indicate whether the election was made with or without traverse, it has been treated as an election without traverse. Please note: claim 51 has been removed from Group I, as directed to a different invention. Claims which were examined are 1-10, 47-50, and 61.

2. The examiner also acknowledges receipt of the Raw Sequence Listing filed 09/12/97 and the Information Disclosure Statement filed 03/16/98.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

a. Claims 1-7, 9, 10, and 61 are rejected under 35 U.S.C. 102(b) as being anticipated by or in the alternative under 35 U.S.C. 103(a) as unpatentable over Murphy et al. (WO 93/21310). The instant specification teaches example viruses which possess a temperature-sensitive mutation at amino acid Phe₅₂₁ as *cpts* 530, 530/1009, and 530/1030; example viruses which possess a mutation at amino acid Gln₈₃₁ as *cpts* 248 and 248/404; an example virus which possesses a mutation at Met₁₁₆₉ as *cpts* 530/1009; and an example virus which possesses a mutation at amino acid Tyr₁₃₂₁ as *cpts* 530/1030. Murphy, et al. teach infectious respiratory syncytial virus (RSV) with two or more attenuating mutations, designated as RSV *cpts*-530, *cpts*-248 (page 13, Table 1; page 14, lines 27-30; and page 15, Table 2), *cpts* 248/404, *cpts* 248/955 (page 23, line 24 and page 25, Table 8), *cpts* 530/1009, and *cpts* 530/1030 (page 29, Table 12). Murphy et al. teach that *cpts* 248/404 possesses at least three attenuating mutations (page 23, line 24). Murphy et al. teach the attenuated RSV formulated into a vaccine dose of from about 10³ to about 10⁶ plaque forming units (PFU)(page 11, lines 15-18). Although the instant claims recite a recombinant RSV and Murphy et al. teach the viruses as produced by cold adaption and chemical

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mutagenesis, the virus (product) of the claimed invention, even though produced by a different process, does not differ from the viruses (products) taught by Murphy et al. Determination of patentability is based on the product itself. Thus, the claimed products are not patentable over those of the prior art absent any distinct difference in the products themselves (see MPEP § 2113). Also, the characterization of the viruses taught by Murphy et al. by specific amino acid mutation is merely a further characterization. The claiming of a new property which is inherently present in the prior art does not make the claim patentable. *In re Best*, 194 USPQ 430, 433(CCPA 1977). See MPEP 2112.

b. Claims 1-3, 10 and 61 are rejected under 35 U.S.C. 102(b) as being anticipated by or in the alternative under 35 U.S.C. 103 (a) as unpatentable over Crowe et al. ("A further attenuated derivative of a cold-passaged temperature-sensitive mutant of human respiratory syncytial virus retains immunogenicity and protective efficacy against wild-type challenge in seronegative chimpanzees", Vaccine, Vol. 12, No. 9, pp. 783-790, 1994). Crowe et al. teach the attenuated RSV *cpts* 248 and 248/404 viruses and their formulation into a dose of $10^{6.3}$ p.f.u. for inoculation of mice (page 785, column 1, "Animals", paragraph 1).

Claim Rejections - 35 USC § 102/103

4. Claims 8 and 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al. in view of Wathen et al. ("Characterization of a novel human respiratory syncytial virus chimeric FG Glycoprotein Expressed Using a Baculovirus Vector", Journal of General Virology, vol. 70, pp. 2625-2635, 1989).

a. Murphy et al. teach attenuated RSV with two or more temperature sensitive mutations. Murphy et al. describe examples of these viruses as *cpts* 248 and 248/404, which possess a mutation at amino acid Gln₈₃₁; and *cpts* 530/1030, which possesses a mutation at amino acid Tyr₁₃₂. The viruses of the claimed invention differ from those described by Murphy et al. in that each of the mutations is on a different virus, rather than combined into the same virus. Murphy et al. teach the desirability of introducing multiple mutations into the same virus for safety in seronegative infants, who are more likely to develop disease from attenuated strains, and for enhancing genetic stability (page 23, lines 1-8).

b. Wathen et al. teach recombinantly produced RSV chimeric FG glycoproteins as potential vaccine candidates (abstract). Wathen et al. describe processes for combining nucleic acids using expression vectors to encode for the desired amino acid sequences (see pp. 2626-2628, "Methods").

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c. It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have used recombinant techniques, which are well known in the art and are taught by Wathen et al., to make RSV having two desired temperature sensitive mutations fused together into a single genome. One of ordinary skill in the art at the time the invention was made would have been motivated to do so to improve the safety and stability of vaccine preparations.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brenda Brumback whose telephone number is (703) 306-3220. If the examiner can not be reached, inquiries can be directed to Supervisory Patent Examiner Marian Knodle whose telephone number is (703) 308-4311. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Examiner Brenda Brumback, Art Unit 1643 and should be marked "OFFICIAL" for entry into prosecution history or "DRAFT" for consideration by the examiner without entry. The Art Unit 1643 FAX telephone number is (703)-305-3014. FAX machines will be available to receive transmissions 24 hours a day. In compliance with 1096 OG 30, the filing date accorded to each OFFICIAL fax transmission will be determined by the FAX machine's stamped date found on the last page of the transmission, unless that date is a Saturday, Sunday or Federal Holiday with the District of Columbia, in which case the OFFICIAL date of receipt will be the next business day.

Brenda Brumback
April 30, 1998

Marian C Knodle
MARIAN C. KNODE
SUPERVISORY PATENT EXAMINER
GROUP 1600 1610